

Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) EP 0 798 016 A3

(12) EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
16.12.1998 Bulletin 1998/51

(51) Int. Cl.⁶: A61N 1/365

(43) Date of publication A2:
01.10.1997 Bulletin 1997/40

(21) Application number: 97103142.2

(22) Date of filing: 26.02.1997

(84) Designated Contracting States:
CH DE GB IT LI NL SE

(30) Priority: 28.03.1996 US 625714

(71) Applicant: VITATRON MEDICAL B.V.
NL-6950 AB Dieren (NL)

(72) Inventor: Kerver, Harry B.A.
6922 NZ Dulven (NL)

(74) Representative:
Ebbinghaus, Dieter, Dipl.-Ing. et al
Patentanwälte v. Fünser, Ebbinghaus, Finck,
Mariahilfplatz 2 & 3
81541 München (DE)

(54) Implantable stimulus system having stimulus generator with pressure sensor and common lead for transmitting stimulus pulses to a body location and pressure signals from the body location to the stimulus generator

(57) A medical device system such as a pacemaker system is provided wherein pressure signals representative of a patient's cardiac movements are transmitted through a pacing lead to the pacemaker, where they are sensed and utilized for control of pacemaker operation. In a preferred embodiment, the invention utilizes a standard pacing lead, which may already be in place within the patient, the lead having a lumen through which relative pressure signals are transmitted from the patient's heart to the proximal end of the lead. The proximal end of the lead is connected to a pressure sensor, mounted either in the pacemaker header portion or within the hermetically sealed pacemaker can. The sensor signals are coupled to appropriate processing circuitry and are used for control of one or more pacing parameters, such as pacing rate. In a first embodiment, the pressure sensor is mounted within the pacemaker header portion, and the electrical sensor signals are connected through an electrical feed-through to the interior of the pacemaker can. In a second embodiment, the sensor signals are passed through a capillary feed-through from the proximal end of the lead which is secured in the header portion, to the interior of the pacemaker can where the pressure sensor is mounted; the capillary feed-through may also conduct sensed heart signals from the proximal end of the lead to within the pacemaker.

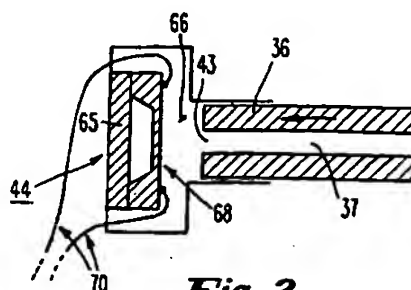


Fig. 2

EP 0 798 016 A3



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number

EP 97 10 3142

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
Y, D	US 4 763 646 A (LEKHOLM ANDERS) 16 August 1988 * column 3, line 22 - column 4, line 16; figures *	1-7, 9	A61N1/365
A	---	8, 10	
Y	US 4 846 191 A (BROCKWAY BRIAN P ET AL) 11 July 1989 * column 4, line 18 - column 5, line 34 * * column 6, line 59 - column 7, line 5 * * column 10, line 40-50; figure 2 *	1-7, 9	
A	---	8, 10	
A	US 4 834 100 A (CHARMS BERNARD L) 30 May 1989 * column 9, line 44 - column 10, line 49; figure 9 *	1-3	
A	EP 0 249 338 A (BARD INC C R) 16 December 1987 * column 8, line 13-17; figures 1-5 * * column 9, line 30 - column 10, line 2 *	1, 2	TECHNICAL FIELDS SEARCHED (Int.Cl.6)
A	US 5 154 169 A (MIYATA SHINICHI ET AL) 13 October 1992 * column 2, line 28-55; figures *	1, 2	A61N
L	WO 97 35636 A (MEDTRONIC INC) 2 October 1997 * the whole document *	1-10	
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 22 October 1998	Examiner Allen, E
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

EPO FORM 1503 63 62 (7/94, Cat. 1)